

Datasets:

ca1



ce1



ce2



h1



h2



h3



m1



m2



**Dataset
processing**

**Standardization
and filtration**

**Negative data
generation**

**Feature
extraction**

**Dataset
characteristics
analysis**

**miRNA
distribution**

**Seed types and
base-pairing
density**

**Intra-dataset
analysis**

**Classification with
different ML
methods**

**In-depth analysis
of XGBoost
performance**

**Identification of
top important
features**

**Cross-dataset
analysis**

**Calculation of
Kullback-Leibler
divergence**

**Dataset
visualization with
PCA**

**Evaluation of
cross-dataset
classification**